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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

In the Matter of)
)
Amendment of Parts 2 and 15 of the) ET Docket No. 94-124
Commission's Rules to Permit Use)
of Radio Frequencies Above 40 GHz)
For New Radio Applications)

To: The Commission

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**COMMENTS OF THE AMERICAN RADIO RELAY LEAGUE, INCORPORATED
IN RESPONSE TO SECOND NOTICE OF PROPOSED RULE MAKING**

The American Radio Relay League, Incorporated (the League), the national non-profit association of amateur radio operators in the United States, by counsel and pursuant to Section 1.415 of the Commission's Rules (47 C.F.R. §1.415), hereby respectfully submits its Comments in response to the *Second Notice of Proposed Rule Making* (the Notice), FCC 94-124, released December 15, 1995 (11 FCC Rcd. 4481). The Notice was released together with a *First Report and Order* in this proceeding, which determined that certain millimeter wave bands, including 76-77 GHz, be made available for unlicensed devices, specifically vehicle radar systems. The instant Notice proposes, among other things, to protect the availability of that band for vehicle radar systems, by temporarily restricting amateur use of the 76-77 GHz segment of the 75.5-81 GHz amateur allocation. In an attempt to "balance any perceived harm" to the Amateur Radio Service from the authorization of vehicle

radars at 76-77 GHz, the Commission proposes to upgrade the status of amateurs in the 77.5-78 GHz segment to co-primary with the radiolocation service. In the interests of the Amateur Service in millimeter wave allocations, the League states as follows:

1. The League is concerned about the philosophy and the substance of the proposed, open-ended, exclusion of the Amateur Service from the 76-77 GHz band. It is assumed that the proposed temporary restriction is based on the position of the American Automobile Manufacturer's Association (AAMA), the petitioner in RM-8308, which, in part, formed the basis for this proceeding. In its comments in response to the first Notice of Proposed Rule Making in this proceeding, AAMA stated, in part, as follows:

AAMA recognizes that the electromagnetic spectrum is a resource that should be shared wherever possible. However, in the implementation of devices that build on existing safety systems, it is imperative that the current level of driver safety not be degraded.

The initial radar devices are expected to include items such as Intelligent Cruise Control which will offer the vehicle driver added comfort and convenience not available with today's cruise control systems. Other devices are expected to add to the driver comfort and convenience as well as enhanced safety during normal vehicle operation. AAMA proposes that vehicle radar systems be the only devices operating in the specified bands until further information is gained concerning interference effects of other users of the electromagnetic spectrum.

AAMA did not, however, demonstrate, nor attempt to demonstrate, that there is any necessary incompatibility between amateur operation in the 76-77 GHz band and vehicular radar.¹ If there is

¹ Nor does its argument that "current level of driver safety" should not be degraded. "Current" technology in use on roadways does not include the types of radars proposed for operation at 76-

a significant potential for malfunction of a vehicular radar device from a properly operating amateur station in the same band at 76-77 GHz, then the Commission should not have proceeded with the allocation in any shared amateur band in the first place. The concern of AAMA would suggest that other bands might better be considered for vehicular radar instead of 76-77 GHz, such as the 60-61 GHz band, as requested by other automobile manufacturers. In this proceeding, however, General Motors submitted a thorough interference analysis, noting that the other users of the proposed vehicular radar bands would not be a likely source of interference to the radars. Rather than suspending amateur use of a band to accommodate a potential sharing partner, the burden of establishing compatibility between incumbent users and newcomers should be on the newcomer. Conversely, it should be incumbent on the proponents of vehicular radar at 76-77 GHz to demonstrate *prima facie* any incompatibility, rather than merely to present a specter of danger to public safety. At present, the only evidence in the record is that there is not a compatibility problem.

2. Unfortunately, the Commission did not require a showing of sharing compatibility, nor did it assess such, prior to finalizing its *First Report and Order* in this proceeding, which allows use of the 76-77 GHz band for vehicular radar. Nor was there, in the instant Notice, any antecedent determination or analysis of

77 GHz.; therefore, there cannot be any degradation of performance of vehicle radars in the band. It is properly incumbent on a newcomer to occupied bands to conduct sharing studies establishing compatibility.

compatibility in support of the proposed suspension of amateur operation in the band. Incompatibility is merely presumed "until sharing criteria can be developed."² In the League's view, this is placing the cart significantly in advance of the horse. There exists ample time, prior to the implementation of vehicular radar systems, for sharing studies to be conducted. The results of those studies, after reasonable evaluation, would indicate the propriety of any restrictions on amateur use of the 76-77 GHz segment. That is the proper order of things, especially in view of the Commission's general allocation plan for the millimeter-wave bands, which is premised on shared uses which require no protection from interference:

While we are concerned about safety considerations, unlicensed bands are generally allocated to uses which can co-exist without causing detrimental interference. In the future, we expect that there will be non-vehicle radar systems which can successfully operate in these bands without causing interference. However, we wish to ensure that vehicle radar systems will have sufficient spectrum and design flexibility to develop their systems successfully, so that at this time we are restricting use of the band to vehicle radar systems.

Id. 11 FCC Rcd. at 4490.

3. There is, at present, no vehicle radar in the band 76-77 GHz, and amateur occupancy of the band is presently light.³ The current occupancy status of this segment is thus well-suited for

² 11 FCC Rcd. at 4490.

³ Though present occupancy is light, the temporary restriction contemplated in the instant Notice, which would have the practical effect of severing the amateur allocation, will have an obvious chilling effect on development of amateur wideband data systems there.

compatible, cooperative development. The League has met with AAMA representatives, and each pledged cooperation to the other in conducting sharing and compatibility studies.⁴ There is no reason, on the record as it stands, to believe that interference from amateur systems will inhibit the development of safe, reliable vehicle radar in the band. Neither does the record support the "temporary" restriction of amateur occupancy of the band, as proposed. In fact, all record evidence is to the contrary. Nonetheless, the Commission states:

We recognize that amateurs would like to maintain their access to the 76-77 GHz band. However, as discussed above, we believe that it is important that we protect vehicle radar systems from potential interference by restricting use of the 76-77 GHz band to such systems until sharing criteria can be established. Given the limited use of the 76-77 GHz band by amateurs and the availability of the 75.5-76 GHz and 77-81 GHz bands for amateur use, we believe that such a modification of our rules will not significantly harm amateur services. We also believe that any inconvenience to amateurs from restricting amateur use of the 76-77 GHz band will be minor and is outweighed by the potential interference problems and related safety concerns noted in the comments. We further believe that such a restriction would be appropriate until such time as it is established that the amateur operators will not cause interference to vehicle radar systems that would compromise public safety. Accordingly, we propose to amend Part 97 of our rules to temporarily disallow amateur use of the 76-77 GHz band. This restriction could be removed at a future time if we are convinced by the material submitted for the record that the safety of vehicle radar systems will not be compromised from other in-band transmissions or if we receive specific sharing recommendation guidelines

⁴ Though the League is certain that the offer of AAMA representatives was made in good faith, AAMA has apparently been hampered in its ability to provide technical specifications to the League by virtue of antitrust considerations. Thus, AAMA has been unable or unwilling to commence the development of sharing criteria.

that do not compromise safety. We intend to revisit within five years the issue of whether the 76-77 GHz band can be shared with amateur radio operators or other users. If it were to become apparent that particular types of radio services or devices will not interfere with vehicle radar systems or if adequate sharing criteria can be established, the restriction can be relaxed.

Id. 11 FCC Rcd. 4507, 4508

4. This text raises a number of significant issues: (1) If the Commission's intent is to protect vehicle radar from interference, there is no need for the restriction, because there is now no vehicle radar in the band. (2) If instead, the purpose of the restriction is to protect the *development* of vehicle radar at 76-77 GHz (devices which the Commission ultimately expects not to be interference susceptible), then the burden should be placed on the manufacturers to develop non-susceptible equipment from the beginning. Precisely because amateur occupancy of the 76-77 GHz band is presently light, the environment is conducive to the development of non-susceptible hardware at the present time. (3) If in fact the restriction on amateur use of 76-77 GHz is "temporary", it is unclear who has the burden of developing sharing criteria, and why the relief of the restriction is phrased in the negative ("...restriction would be appropriate until such time as it is established that the amateur operators will not cause interference to vehicle radar systems...") If it is the Commission's intention to make the restriction temporary, rather than a precursor to later, permanent exclusion of amateurs from the band, or a reallocation of the band (and assuming that the restriction is

justifiable *ab initio*), then the restriction should have a fixed period and a fixed termination date, and the burden should be placed on the manufacturers of vehicle radar to demonstrate at the end of the term if, and if so why, the restriction should be extended. This is especially true since the manufacturers have control over the disclosure of system configuration and operating parameters, and thus the League is not able to unilaterally conduct sharing studies. That is not, however, the way the Commission's proposal is phrased. The burden of conducting sharing studies and developing criteria is unspecified.

5. The League is concerned that any "temporary" suspension of amateur operation at 76-77 GHz is in fact temporary. The language at Paragraph 61 of the Notice does not offer any assurance whatsoever that this is the case. It states that the restriction "could be removed at a later date"; that the Commission intends "to revisit" the issue of "whether the 76-77 GHz band can be shared with amateur radio operators or other users"; and that "if" (not "when") sharing criteria can be established, the restriction "can be relaxed". This is unsatisfactory to the League. If the Commission wishes to establish a temporary suspension of amateur activity at 76-77 GHz, the restriction should be for a fixed period, after which the restriction should be lifted, absent a substantial justification by the proponents of vehicle radar.

6. The foregoing notwithstanding, the Commission is to be commended for its effort to accommodate amateur operation in the 75.5-81 GHz band by creating a co-primary allocation for the

Amateur Service at 77.5-78 GHz. Thus, amateurs will have primary allocations at 75.5-76 GHz and 77.5-78 GHz, and secondary status in the remainder. This should encourage further amateur experimentation and the development of new data systems in the band. Notwithstanding, it would have been far preferable to have a contiguous primary allocation in the band in order to experiment with wideband systems. At these frequencies, experimenters require operational flexibility. For that same reason, it is unfortunate that the restricted segment appears in the middle of the amateur allocation, rather than nearer to 81 GHz. It is not useful to divide the band into small segments. To do so reduces the benefit thereof for experimentation. However, the Commission's decision to permit vehicle radar in the 76-77 GHz band, having been finalized, the elevation to co-primary of a 500 MHz segment at 77.5-78 GHz is desirable; and at least partially offsets the proposed restriction at 76-77 GHz, and the diminution of the utility of the band for amateurs generally following the Report and Order.

7. In summary, the League suggests that the decision whether or not to restrict amateur use of the 76-77 GHz band should not be made on the present record. Such a decision, the wisdom of which is questioned by the League in any event, should be postponed until a finding regarding sharing status is made as the result of sharing studies. The Commission should proceed with the creation of a co-primary allocation for amateurs at 77.5-78 GHz at the earliest opportunity, as the result of diminution of utility of the 76-77

GHz band resulting from the decision to permit its use for vehicle radars.

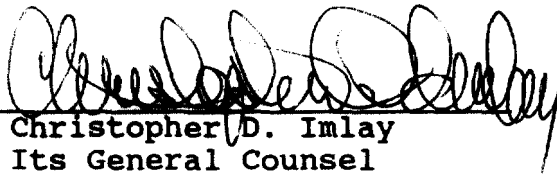
Therefore, the foregoing considered, the American Radio Relay League, Incorporated respectfully requests that the Commission's actions in this proceeding be consistent with the foregoing comments; that the proposed restriction on Part 97 operation by radio amateurs at 76-77 GHz be deferred pending review of the sharing criteria appropriate to this band; that if any temporary restriction is in fact imposed as the Notice proposes, that it be for a fixed term only; that the burden be placed on the manufacturers of vehicle radar to establish any need to extend the fixed term of any such restriction; and that the Commission proceed without delay to implement the primary allocation for amateurs at 77.5-78 GHz.

Respectfully submitted,

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